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Measuring employment and unemployment in Canada and the United States – a comparison

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. not available for any reference period
.. not available for a specific reference period
... not applicable
0 true zero or a value rounded to zero
0[s] value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
[p] preliminary
[r] revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
[E] use with caution
F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

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Measuring employment and unemployment in Canada and the United States – a comparison

1. Introduction

Statistics related to employment are among the most watched indicators released by National Statistical Agencies. In Canada, Statistics Canada releases two sets of sample-based estimates of employment on a monthly basis: from the Labour Force Survey (LFS) of households and from the Survey of Employment, Payrolls and Hours (SEPH) of businesses.[1] Comparisons are naturally made to the two analogous surveys released by the Bureau of Labor Statistics in the United States: the Current Population Survey (CPS) of households and the Current Employment Statistics (CES) program survey of establishments (businesses). More specifically, employment, unemployment and participation rates from these surveys are often used to compare labour market trends in the two countries.

This report presents information to inform users who wish to compare estimates of employment and unemployment from the Canadian and American surveys. Considerations include concepts, methods, seasonal adjustments, timeliness, revisions, and principal uses. A brief description of the four surveys is presented in Appendix 1. The concepts used in these surveys are presented in a comparative fashion in Appendix 2. The main differences are summarized in Appendix 3.

This report compares these surveys from different perspectives. First, household and business employment surveys are examined in general in Section 2, whether they are conducted in Canada or in the United States. Within each type of survey (household or business), there are conceptual and methodological differences in how Canada and the United States measure employment and unemployment. These differences are documented in Section 3.

2. Conceptual and methodological differences in employment measurements: Household and business statistical programs

Statistics Canada and the Bureau of Labor Statistics use a number of program instruments to develop measures of employment, including household surveys, business surveys and administrative records.

The household and business statistical programs in both countries are in essence quite different. The household surveys collect information about the employment status and demographic characteristics of their members, while the business statistical programs receive information on jobs from businesses directly or from government payroll remittance reports. The nature of their outputs reflects the designs of the statistical programs, together producing a comprehensive portrait of the labour force.

At the most general level, both household and business survey programs are consistent in their measures of general employment trends. Taking into account conceptual differences such as those described in this and the next section, the two surveys in each country over time track each other fairly well (Charts 1 and 2), differing on average by less than 1%.[2] The smaller residual differences, more difficult to explain, may be due to further conceptual or methodological differences, including how quickly changes to employment status are reflected in government administrative files. Small differences are also observed to be more prevalent during periods of economic downturn or recovery.

Most users, however, seek more than a general sense of employment trends, and understanding their conceptual and methodological differences becomes important.

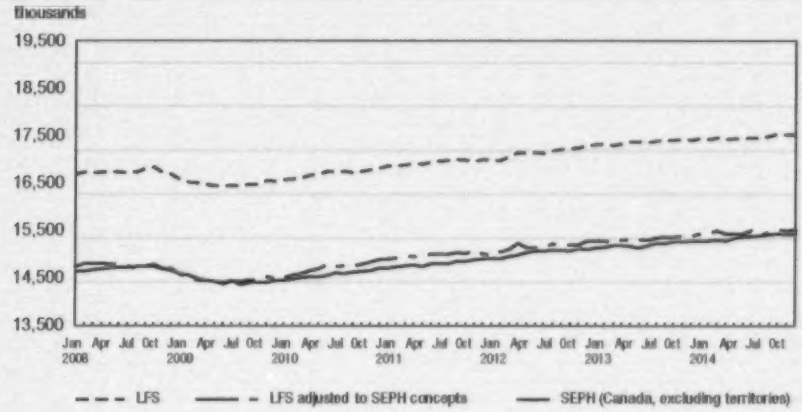
Section 3 highlights conceptual and methodological differences in employment measurements released by Statistics Canada and the Bureau of Labor Statistics. This is not straightforward, as both countries make use of household and business employment statistical programs in different ways.

To put the comparisons of Section 3 in context, the rest of this section highlights in a general sense differences in concepts and methods between a household labour force survey (like the Canadian LFS and American CPS) and a business employment survey (like the Canadian SEPH and American CES).

1. In this report, SEPH, a business statistical program, is also referred to in a more general sense as a business survey. However, the SEPH component used to estimate national employment by industry is a census of administrative data, not a sample.

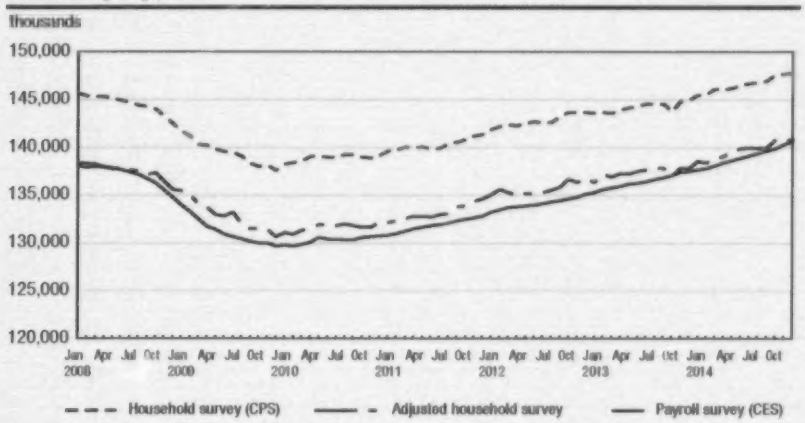
2. While the monthly levels of employment track well from both types of surveys, greater differences may be observed looking at series of monthly change. This is expected and over longer time periods changes in employment also track well.

Chart 1
Employment levels from the household and payroll surveys, January 2008 to December 2014, seasonally adjusted


thousands
19,500
18,500
17,500
16,500
15,500
14,500
13,500
Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct
2008 2009 2010 2011 2012 2013 2014
LFS
LFS adjusted to SEPH concepts
SEPH (Canada, excluding territories)

Source: Statistics Canada.

Chart 2
U.S. household and payroll survey employment, January 2008 to December 2014, seasonally adjusted


thousands
150,000
145,000
140,000
135,000
130,000
125,000
120,000
Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct Jan Apr Jul Oct
2008 2009 2010 2011 2012 2013 2014
Household survey (CPS)
Adjusted household survey
Payroll survey (CES)

Source: Bureau of Labor Statistics.

Concepts

The main conceptual difference between household labour force surveys and the business employment surveys is that the household surveys produce estimates of the number of employed persons, while the business surveys estimate the number of jobs. While the LFS and CPS household surveys collect information on multiple jobs, they count persons only once according to their main job, regardless of how many jobs they have, while SEPH and CES include an individual more than once if they hold multiple jobs.

Another difference is that the LFS and CPS consider as employed certain persons absent from work without pay and people on maternity or paternity leave, while SEPH and CES only include persons receiving pay during the reference period.

Content

The LFS and CPS also provide measures of both employment and unemployment including their rates, while SEPH and CES only provide measures of employment.

Beyond the employment and unemployment numbers, there are differences in the characteristics that are measured. Through interviews with household members, the household labour force surveys allow for more detail on their demographic, educational and family characteristics. The information covered through business employment surveys on the other hand provides for more detailed estimates by industry level and by size of enterprise, including average weekly earnings and hours paid.

Coverage

Household labour force surveys provide a broader picture of employment—including the agricultural, fishing and trapping, and private household services sectors—and the self-employed; and can provide data on the unemployed. Business surveys, with a focus on payroll employment, do not include these sectors.

Reference period

The reference period of the household labour force surveys is generally the calendar week that includes mid-month (15th in Canada, 12th in the United States).

The business statistical employment programs, on the other hand, are primarily based on a pay period, which can cover a week, two weeks, a semi-month or a month. In Canada, the reference period is the last week of the month, while in the United States it includes the 12th of the month. Month-to-month changes can be affected by which weeks are reported on. In many cases this is addressed through seasonal adjustment methods discussed later on. When a reported pay period is longer

than one week, the data are adjusted by dividing the number of days of work reported on the respondent's return by the number of working days covered by the pay period in question.

Sampling and non-sampling errors

Household and business surveys are subject to both sampling and non-sampling errors, while the administrative data component of business surveys is only subject to non-sampling error. The sub-section on quality provides an assessment of the extent of the sampling errors.

3. Conceptual and methodological differences in employment measurements: Statistics Canada and Bureau of Labor Statistics

The fundamental concepts and methods used by Statistics Canada and the US Bureau of Labor Statistics are quite similar. Both countries use internationally recognized methods and indicators to measure the performance of the labour market. In some cases they integrate information obtained from surveys with information from administrative data files on individuals and on businesses.

There are differences in the concepts and methods of household and business surveys that are common to both countries. These were highlighted in the previous section.

There are also differences in how these methods are applied in Canada and in the United States, in particular with respect to the thresholds within international standards that may influence comparisons of the more detailed results. These are highlighted below. Appendix 3 provides a summary of these differences.

Studies have examined to what extent conceptual differences affect comparisons between the two countries. For example, at the national level, on average between 2007 and 2013, adjusting the Canadian unemployment rate to American concepts lowered the Canadian rate by about one percentage point.[3,4]

3.1 Official national employment and unemployment numbers

In Canada, Statistics Canada releases the official monthly employment and unemployment figures from the LFS household labour force survey. It provides timely monthly estimates that are important indicators used to measure the performance of the Canadian economy.

In the United States, the Bureau of Labor Statistics releases the official monthly employment figures from the CES business employment survey and the official monthly unemployment figures from the CPS household labour force survey in a joint report. These estimates are the first main economic indicator of current economic trends in a particular month and are inputs to many gauges of the U.S. economy.

Said another way, the official national estimates of employment in Canada and the United States come from two different types of statistical programs: a household labour force survey and a business employment survey, respectively. The official national estimates of unemployment for these countries both come from their household labour force surveys. These distinctions should be kept in mind throughout this section.

3.2 Timeliness

Canada and the United States release their official national estimates of employment and unemployment at about the same time, generally within the first week following the reference month. Depending on the estimates, there are differences in the timing of the release of the more detailed data.

Employment details by industry at the national level

In Canada, SEPH employment estimates by industry are released about two months after the reference month, once payroll information provided by businesses has been reported and processed.

In the United States, the CES releases national employment estimates by industry within one week of the reference month, at the same time as the total national figures.

Employment details by industry at the regional level

In Canada, SEPH estimates of national, provincial and territorial employment by industry are released at the same time, two months after the reference month. Estimates by industry below this level are not part of the official release.

In the United States, in collaboration with state authorities, CES estimates by industry at the state level are released within three weeks of the national employment figures. They are produced independently of the national estimates, using only the state-specific portion of the national database. Summed state level CES estimates should not be compared to national CES estimates. County/metropolitan estimates are released within four weeks of the national employment figures. Modeling techniques are used for the employment estimates by industry for metropolitan areas and counties given the increased sampling error with the smaller sample sizes.

Regional employment and unemployment

In Canada, the LFS national and regional employment and unemployment estimates are released at the same time, one week following the reference month. Regional estimates are provided for provinces, territories, metropolitan areas and employment insurance economic regions.

3. Statistics Canada. 2015. *Guide to the Labour Force Survey*. Statistics Canada Catalogue no. 71-543-G. Ottawa, Ontario.

4. Sorrentino, Constance. 2000. "International unemployment rates: how comparable are they?" *Monthly Labor Review*. June. Bureau of Labor Statistics.

In the United States, in collaboration with state authorities, the Bureau of Labor Statistics releases regional and state estimates of employment and unemployment within three weeks of their national release. Data for metropolitan areas produced by the Bureau of Labor Statistics and under the Local Area Unemployment Statistics (LAUS) Program are released one week later.

3.3 Household labour force surveys

Concepts

The concepts used by Canada and the United States to measure employment and unemployment are closely aligned with international recommendations defined by the United Nations[5] and the International Labour Organization (ILO).[6] Within the details of the recommended definitions, in some cases it is acknowledged that countries may set their own criteria based on legislation and national needs.

Age

The lower age threshold for employment statistics differs in Canada (15 years) and the United States (16 years). While they use a minimum age of 15 in their published labour force tabulations, recommendations from the United Nations and from the ILO allow that the minimum age be set in accordance with the conditions of each country.

In Canada, there is no national law on minimum age for employment. The minimum age to work is determined by the provinces and territories. The LFS collects information for household members aged 15 years and over.

In the United States, to be eligible to participate in the CPS, individuals must be 15 years of age or over. However, employment data are only published for those aged 16 and over since those under 16 are limited in their labour market activities by compulsory schooling and child labour laws.

Employed and unemployed persons

In Canada and the United States, the LFS and CPS divide the working-age population into three mutually exclusive groups—employed, unemployed and not in the labour force. There are differences for some of the details within the definitions of employed and unemployed, also affecting the population considered not to be in the labour force.

Employed

Both Canada and the United States consider as employed persons those who did unpaid work in a family-owned enterprise operated by someone in their household. In Canada, the LFS does not set a minimum numbers of hours during the reference week for such work; in the United States, the CPS has a threshold of at least 15 hours. The ILO standard does not set a minimum threshold, though it recognizes that countries may prefer to have one.

Unemployed

In the LFS, the following three groups of people considered unemployed in Canada are deemed by the CPS to not be participating in the labour force in the United States: (1) people who were looking for work, but who looked only at job ads (passive search); (2) people who had not looked for work, but who reported that they had a job that would start in the next four weeks; and (3) people who had reported that they were not available to work because of personal or family responsibilities, or vacation.

Conversely, full-time students who reported that they were looking for full-time work are deemed by the LFS to not be participating in the Canadian labour force, but in the United States are considered unemployed in the CPS.

Regarding the Canadian inclusions above, the ILO standard for those considered unemployed also includes those who are waiting to start a new job. The ILO standard does not, however, include those searching for a job only by looking at ads. For the ILO standard on temporary absences, there are no guidelines on exceptions such as for personal or family responsibilities, or vacation. The American inclusion of full-time students who report that they are looking for full-time work is in line with the ILO standard.

Full-time status

In Canada, full-time employment is defined as usually working 30 hours or more per week, while in the United States the threshold is 35 hours per week. There is no international standard on what the threshold should be.

Mandatory and voluntary surveys

In Canada the LFS is mandatory under the authority of the *Statistics Act*, while in the United States the CPS is voluntary under the authority of the Office of Management and Budget (OMB).

Sample size

In Canada, the sample size for the LFS is about 56,000 households, or about one in 240 Canadian households. The survey provides the official national employment and unemployment figures by demographic and other characteristics as well as regional figures for provinces, territories, metropolitan areas and employment insurance economic regions.

In the United States, the sample size for the CPS is about 60,000 eligible housing units, also referred to as households. With a national population ten times greater, this is a proportionately smaller survey, representing about one in 2,000 American housing units. The survey provides national estimates of unemployment and demographic, race, ethnicity and other characteristics of employment not available from the CES.

5. United Nations Economic Commission for Europe. 2006. *Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing*. New York, N.Y. and Geneva. The Conference of European Statisticians provides a platform for coordination of international statistical work in the United Nations Economic Commission for Europe, of which Canada and the United States are members.

6. International Labour Organization. "Definitions of the topics." *LABORSTA*. Last updated January 3, 2016. The International Labour Organization provides a platform for coordination of international definitions and measurements in the area of labour statistics. Delegates including from Canada and the United States represent national governments, employers' organizations and labour unions.

Estimation and weighting

Estimation and weighting are the processes for converting survey information that is collected from a sample of the population to estimates for the entire population.

These processes for deriving LFS and CPS estimates of employment and unemployment are similar in many respects. In their most basic form, household sample data are assigned a basic weight, generally equal to the inverse probability of selection. For example, in an area where 2 percent of the households are sampled, each household would be assigned a basic weight of $1/.02 = 50$. As such, each response would be deemed to be representative of fifty households.

Three main adjustments to these weights are then applied that are common to the LFS and the CPS: (1) to account for additional sampling or sub-sampling due to unexpected population growth in an area and the maintenance of the overall sample size over time; (2) to account for differences in household non-response patterns for sub-groups of the population; and (3) to account for coverage errors by calibrating to independent estimates of the population, with additional composite calibration taking advantage of information from the overlapping sample of the previous month.

Regarding adjusting the weights for coverage, the process for the CPS is the more complex, introducing race and ethnicity characteristics.

For the composite calibration, the main difference is in the additional variables used. The LFS uses provincial level estimates from the previous month on employed by industry and class of worker (public sector, private sector), while the CPS uses national level employed and unemployed by age-sex-race and age-sex-ethnicity groups, and state level employed and unemployed aggregates.

Seasonal adjustment

Employment and unemployment indicators are often subject to seasonal variation attributable to such things as changes in weather, school schedules and reduced or expanded production.[7] When these seasonal events follow a regular pattern every year, their influence on statistical trends can be minimized by seasonal adjustment techniques.

Canada and the United States use similar methods and software (versions of ARIMA) to remove the influence of seasonal events on trends by adjusting the data from one month to another. The methodology generally allows seasonal adjustment for the more aggregate levels such as national and provincial/state levels by broad age group and sex, high-level industry aggregates or class of worker (employees or self-employed). Seasonal adjustments can also adjust for calendar effects such as moving holidays or variations in the number of weeks between the reference periods. In Canada, for smaller groupings where seasonal adjustment is not possible, comparisons are done on a year-to-year basis, i.e., September to September.

One minor difference in the seasonal adjustment processes used by the LFS and CPS for the national estimates is the level of detail of the age groups used for the adjustment. The LFS at the national level uses six broad age-sex groups (15-24, 25-54, 55+, crossed by sex) while the CPS uses four broad age-sex groups (16-19, 20+, crossed by sex). Seasonal adjustments at the provincial and state levels are done independently each using four broad age-sex groups.

A greater difference is in the additional raking step by the LFS to ensure consistency between national and provincial level estimates. In the United States, the detailed estimates by state are not necessarily consistent with national aggregates. Another difference is that in the United States the seasonal adjustment for states and a few sub-state areas account for sampling error.

Revisions

The processes for revising the household survey estimates are similar in Canada and the United States in that they revise the seasonally adjusted series and may adjust for population controls based on the previous census and estimates of demographic change since then. These revisions generally do not affect overall trends but can impact month-to-month changes. There is no direct benchmarking for employment.

In Canada, the LFS revises its seasonally adjusted series every year. The revisions are applied back three years, which is a long enough period to provide historically comparable time series. Further revisions are made every five years following the quinquennial census of population. In 2015, historical data based on the 2011 Census were revised back to 2001.

The extent of the revisions on Canadian estimates of employment and unemployment at the national level tends to be very small. When rebasing following the Canadian 2011 Census, the monthly estimates of employment between 2001 and 2014 were in general lower, reaching a peak difference in January 2010 of -0.4%.[8] While the trends remained the same, the trough during the 2008-2009 economic recession of employment levels was revised one month from July 2009 to June 2009. The impact on the rates of employment and of unemployment was negligible.

In the United States, revisions are a part of the annual seasonal adjustment process. Seasonally adjusted estimates for the last five years are subject to revision to incorporate new seasonal factors.

Outside of seasonal adjustment, national estimates from the CPS are rarely revised. Each year the survey incorporates updated population controls from the Census Bureau. The impact of these population control adjustments

7. Fortier, Susie and Guy Gellatly. 2015. *Seasonally adjusted data – Frequently asked questions*. Statistics Canada. Catalogue no. 11-001-X. Ottawa, Ontario.
8. Statistics Canada. 2015–. *Improvements to the Labour Force Survey (LFS): The 2015 Revisions of the Labour Force Survey (LFS)*. Statistics Canada Catalogue no. 71F0031X. Occasional.

is typically small, with negligible effects on employment-population ratios and unemployment rates. In 2015, for example, the impact on levels of employment and unemployment were about 0.2% to 0.3%, with no impact on the unemployment rate.[9] The population controls that include new information from the decennial census are typically larger. Some of the decennial census impacts have been large enough that data were revised back to the census reference year; this last occurred after the 1990 and 2000 Censuses but not after the 2010 Census. Research series are created for users that smooth out level shifts in the labour force and in employment estimates resulting from population control adjustments.

State-level estimates are revised annually through the Local Area Unemployment Statistics (LAUS) program that estimates employment and unemployment at this level using time-series models, drawing on several sources, including the CPS, the CES and state employment insurance (EI) programs. These annual revisions reflect updated population data from the U.S. Census Bureau, including the decennial census, revisions in the other data sources and model re-estimation.

Quality

The quality of official employment and unemployment estimates produced in Canada and the United States is very high. Their internationally recognized survey methods, large sample sizes and use of census administrative sources generate accurate and detailed estimates of employment and unemployment.

Two indications of quality at the national level were discussed earlier in this report. The first is the close comparability of the independent household and business surveys. In Canada (LFS and SEPH) and in the United States (CPS and CES), these surveys track each other very well. Taking into account conceptual differences, the levels of employment at the national level differ on average by less than 1%. The second is the extent to which estimates are revised. For the household labour force surveys (LFS and CPS), recognizing there is no direct benchmarking for employment, revisions from updates to the population control totals have a negligible effect on the rates of employment and unemployment. An additional indication of data quality is the standard error, which is a measure of sampling error.

Sampling errors and non-sampling errors

Sampling errors occur because observations are obtained from a sample rather than from the entire population. Estimates based on a sample can differ from statistics that would have been obtained if a complete census had been taken using the same instructions, interviewers and processing techniques. This difference is called the sampling error of the estimate. At national levels with large sample sizes, sampling errors tend to be very small. The errors are generally larger for sub-groups, such as at a regional level or for specific industries. Statistically, these types of errors are to be expected and are quantifiable at all levels.

Non-sampling errors are not statistical in nature and are thus more difficult to measure. They can come from a number of sources, including from the use of proxy responses, the interpretation of questions by respondents, the interpretation of answers by interviewers, non-response, and coding of industry and occupation. While sound quality assurance practices in the planning, testing, training and operational phases of a survey minimize these types of errors, they do occur.

Sampling standard errors

If the process of selecting a sample from the population were repeated many times, approximately 68% of the intervals from one standard error below the estimate to one standard error above the estimate would include the true value. This level of confidence increases to 90% with intervals about +/-1.6 times the standard error, and to 95% with intervals twice the standard error. When the estimate is a measure of change such as employment, the larger the change compared to the standard error, the better the chance that the change is real, as opposed to a change due to sampling variability.

The standard error in both countries is small, with little variation from year to year.

In Canada, the LFS standard error associated with the monthly changes in employment using the LFS was about 28,700[10], or about 0.2%. Over time, it has remained relatively constant, at around 29,000, even if the employment base on which change is measured has increased over time.[11]

In the United States, the CPS standard error of the monthly changes in employment is about 265,000[12], or 0.2 % when calculated based on the percent change in employment from month-to-month.

Volatility of official monthly estimates

The monthly estimates of employment from the household and business surveys over time give a robust reflection of labour market trends in Canada and in the United States. In the short time frame however, month-to-month changes in employment and unemployment can be much more volatile. The volatility of the estimates tends to increase with regional and industry sub-groups given their smaller sample sizes.

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9. Bureau of Labor Statistics. 2015. "Population control adjustments to the CPS." *Labor Force Statistics from the Current Population Survey: Technical Documentation*. Washington, D.C.
10. Statistics Canada. 2015. "Labour Force Survey, April 2015." *The Daily*. May 8. Statistics Canada Catalogue no. 11-001-X.
11. Bernard, André and Guy Gellatly. 2014. *Interpreting Monthly Changes in Employment from the Labour Force Survey*. Statistics Canada Catalogue no. 11-626-X. Ottawa. (Ontario: Economic Insights Series, no. 033.
12. Bureau of Labor Statistics. "Updates and adjustments to Current Population Survey standard errors." *Labour Force Statistics from the Current Population Survey: Last updated January 18, 2007*.

In any given month, the size of the real labour force is subject to random upward and downward fluctuations as businesses open, close and rebound and as people enter the labour force or retire, are laid off, or are recalled to work. Month-to-month fluctuations in real-world movements are to be expected.

Sudden large or unexpected monthly movements may be due to a combination of three factors: actual movements in the labour market, sampling error and non-sampling error. At times these factors may cancel each other out; at other times they can amplify a real change.

Over time, the changes observed in employment are primarily reflective of real changes in the labour market. Due to their statistically random nature, sampling errors tend to diminish in importance over a longer period and non-sampling errors are generally smaller with much less effect on the estimates.

Measures can be taken to reduce the volatility of the month-to-month changes. Seasonal adjustments can address irregular changes due to calendar-based events. Users can also combine estimates for several consecutive months, for example using three- or six-month moving averages or using trend-cycle estimates.

In Canada, there has been increased scrutiny of the LFS results, particularly with regard to unexpected movements for a given month. However, the survey has exhibited much the same degree of month-to-month fluctuation recorded since the 1970s. From 1976 to 2013, using seasonally adjusted estimates, the standard deviation was on average 0.24% when calculated based on the percent change in employment from month-to-month.[12] There is no evidence that the month-to-month changes in employment have recently been more volatile.

In the United States, volatility can be seen by how often the monthly change in CPS employment numbers exceed a certain threshold. From 1994 to 2006, using originally published data not seasonally adjusted, the monthly change in CPS employment numbers exceeded 500,000 (about twice the average standard error) twenty-three times.[12] In comparison, the larger CES survey showed a change of this magnitude only once in this period. This measure is not available in Canada.

3.4 Business employment surveys

Mandatory and voluntary surveys

In Canada, the component of SEPH used to estimate employment by industry under the authority of the *Statistics Act* is based on a federal government administrative source with mandatory coverage of all payroll businesses.

In the United States, the CES is conducted by the Bureau of Labor Statistics in collaboration with states, under the authority of the Office of Management and Budget (OMB). The survey is mandatory in four states.

Sample size

In Canada, the component of SEPH used to estimate national employment by industry is a census of business and government agency administrative data. There is thus no sampling.

In the United States, the sample size for the CES is about 143,000 businesses and government agencies covering 588,000 establishments, about just over one in 15 establishments. This large sample allows for sufficient accuracy and industry detail required for the official national employment figures.

Estimation

In Canada, the component of SEPH used to estimate national employment by industry is a census of administrative data. There is thus no estimation.

In the United States, the CES estimation of employment involves a two-part estimator. In its most basic form, the first part matches businesses that are part of two consecutive monthly samples. The change in their total number of employees between these two months is calculated as a ratio that is applied to the national estimate of the previous month. As this does not take into account new businesses or those that go out of business, the second part uses modelling techniques to estimate births and deaths of businesses. There is an unavoidable lag between an establishment opening for business and it appearing on the survey sample frame.

Seasonal adjustment

Employment indicators are often subject to seasonal variation attributable to such things as changes in weather and reduced or expanded production. When these seasonal events follow a regular pattern every year, their influence on statistical trends can be minimized by seasonal adjustment techniques. As for the household labour force surveys, Canada and the United States use similar methods and software (X-13ARIMA) to remove the influence of seasonal events on trends by adjusting the data from one month to another.

Both SEPH and CES apply seasonal adjustment factors to employment estimates using industry data at the 3-digit level. The main difference is the additional raking step by SEPH to ensure consistency between national and provincial level estimates by industry. In the United States, the state estimates by industry are not necessarily consistent with national aggregates. As well, CES seasonally adjusts for the number of weeks between reference periods. SEPH does not do this adjustment—its reference week is always the last week of the month.

12. Dantas, Stacy and Teresa L. Morisi. 2008. "Understanding the employment measures from the CPS and CES surveys." *Monthly Labor Review*. February. Bureau of Labor Statistics.

Revisions

Initial revisions for the employment estimates are more extensive in the United States than in Canada, a reflection of their different methods and timelines.

In Canada, preliminary SEPH estimates are generally released two months after the reference month and are revised the following month. These revisions are relatively small, as by the initial release most of the government administrative information has been collected. There is a further annual historical revision (generally back four years) as a result of a detailed analysis and validation of the data. There is no benchmarking as SEPH is already based on an administrative census of businesses, which covers all payroll establishments in the country. The difference between the preliminary and revised monthly payroll employment estimates is quite stable. For the ten-year period 2001-2010, the absolute mean revision was less than 0.2%. [14]

In the United States, preliminary CES estimates are generally released one week following the reference month. More timely than those from SEPH, these estimates undergo more extensive revisions over the next two months to take into account new information as it is received. The Bureau of Labor Statistics tracks collection rates for the CES sample on a monthly basis. [15] The average annual collection rates for 2014 increased from 78.1% for the first preliminary release to 91.3% for the second preliminary release and 96.9% for the third final sample-based release. The CES also benchmarks its estimates annually primarily to the Quarterly Census of Employment and Wages (QCEW) program based on Unemployment Insurance tax reports. [16] This benchmarking assumes that the error associated with the annual revision accumulates in a linear fashion. The differences between the third preliminary estimates and annual benchmarked estimates are quite stable, with a ten year absolute mean revision of less than 0.2%.

Quality

Two indicators of quality at the national level for business employment surveys were discussed earlier in this report.

The first is the close comparability of the independent household and business surveys. In Canada (LFS and SEPH) and in the United States (CPS and CES) these surveys track each other very well. Taking into account conceptual differences, the levels of employment at the national level differ on average by less than 1%.

The second is the extent to which the estimates are revised. In Canada, SEPH is a census of payroll businesses to complement the official estimates of employment with detailed industry breakdowns. The longer time lag before their release reduces the effect of delayed reporting by businesses. As a result, subsequent revisions at the national level are relatively small.

In the United States, CES is the official source of national employment figures requiring more timely estimates. Compared to SEPH they are revised more extensively over the next two months to reflect additional reported information. Subsequent revisions including benchmarking to administrative data at the national level are relatively small.

Sampling standard error

A third indication of data quality is the sampling standard error described earlier. This only applies to the CES as employment from SEPH is estimated from an administrative census. The CES standard error for the initial preliminary estimate of the month-to-month change in employment published in 2015 [17] is about 63,000. With a much larger sample, this is about one quarter the standard error for CPS.

Non-sampling errors

Employment estimates produced from business administrative data are also subject to non-sampling errors. This is the case for the Payroll Deduction (PD) remittance forms as the foundation for SEPH and the Quarterly Census of Employment and Wages (QCEW) program used to benchmark the CES. Non-sampling errors include late reporting by businesses as they submit their monthly reports, or in calculating the number of employees for establishments with multiple remittances in a month. As well, the processing of forms can be quite complex and may also be a source of error. In both Canada and the United States, sound quality assurance practices in the planning, testing, training and operational phases of a survey program minimize these types of errors.

Volatility of monthly estimates

In Canada, with no sampling error, much of the observed change in the monthly SEPH estimates reflects real change in the labour market. The non-sampling errors just described may also introduce some variability in the observed month-to-month change.

In the United States, the CES is less volatile than the CPS primarily due to its larger sample. During the period from 1994 to 2006, as mentioned earlier, the CPS monthly change in employment numbers exceeded 500,000 (about twice the average standard error), twenty-three times. [18] The CES, by contrast, showed a change of that magnitude only once during those years.

4. Conclusion

The economies of Canada and the United States are well served by accurate and timely official measures of employment and unemployment. The methods used are well recognized internationally for their rigor.

14. Statistics Canada internal calculation.
15. Bureau of Labor Statistics, 2015, "CES Program Periods by Release" table, *Current Employment Statistics – CES*. Retrieved: Washington, D.C.
16. Bureau of Labor Statistics, "Technical Notes for the Current Employment Statistics Survey", *Current Employment Statistics – CES*. Retrieved: Last updated: June 5, 2015.
17. Bureau of Labor Statistics, 2015, "All Employees, Seasonally Adjusted Series" series, *Current Employment Statistics – CES*. Retrieved: Washington, D.C.

The application of the methods in each country best takes advantage of the statistical infrastructure within their respective governments, including the development of administrative data for statistical purposes and the conduct of national household and business surveys. In Canada for example, a large monthly household survey provides detailed measures of person employed, unemployed and out of the work force. In the United States, a federal-state cooperative program provides timely data each month on employment from a large sample of non-farm establishments.

Studies have examined to what extent conceptual differences affect comparisons between the household labour force surveys of the two countries. For example, adjustment of the Canadian unemployment rate to American concepts has recently lowered it by about one percentage point. Factors contributing most to lowering the Canadian unemployment rate when adjusting to the American concepts include removing passive job seekers (people who were looking for work, but who looked only at job ads) and to a lesser extent persons waiting to start a new job within 4 weeks and persons unavailable to work because of personal or family responsibilities or vacation. This is partly offset when full-time students seeking full-time work are added.

When making comparisons at more detailed levels, one should consider the variables used and the nature of the analysis. For example, when comparing recent trends in national employment statistics by detailed industry, there is a time lag of about seven weeks between the earlier American and the Canadian releases. When doing analysis including concepts such as age and full-time work, the data should be standardized to take into account conceptual differences. ■

Bernard, André and Guy Gellatly. 2014. Interpreting Monthly Changes in Employment from the Labour Force Survey. Statistics Canada Catalogue no. 11-626-X. Ottawa, Ontario. Economic Insights Series, no. 033.

Bernard, André and Jeannine Usalcas. 2014. The Labour Market in Canada and the United States since the Last Recession. Statistics Canada Catalogue no. 11-626-X. Ottawa, Ontario. Economic Insights Series, no. 036.

Fortier, Susie and Guy Gellatly. 2013. Seasonally adjusted data – Frequently asked questions. Statistics Canada Catalogue no. 11-001-X. Ottawa, Ontario.

Gilmore, Jean and Dominique Pervasas. 2012. Employment, earnings and hours: Monthly and seasonal factors. Statistics Canada. Ottawa, Ontario. Internal document.

Statistics Canada. 2015. Guide to the Labour Force Survey. Statistics Canada Catalogue no. 71-543-G. Ottawa, Ontario.

Statistics Canada. 2015. Guide to the Survey of Employment, Payroll and Hours. Statistics Canada Catalogue no. 72-203-G. Ottawa, Ontario.

Statistics Canada. 2015–. Improvements to the Labour Force Survey (LFS): The 2015 Redesign of the Labour Force Survey (LFS). Statistics Canada Catalogue no. 71F0031X. Occasional.

Statistics Canada. 2015–. Labour Force Information. Statistics Canada Catalogue no. 71-001-X. Monthly.

Statistics Canada. 2015. "Labour Force Survey, April 2015." The Daily, May 8. Statistics Canada Catalogue no. 11-001-X.

Statistics Canada. 2015–. Methodology of the Labour Force Survey. Statistics Canada Catalogue no. 71-526-X. Occasional.

Smith, Wayne R., Chief Statistician. 2015. "Labour Force Survey: Reboot and rebuild." StatCan Blog, February 13. Statistics Canada.

Smith, Wayne R., Chief Statistician. 2015. "The Labour Force Survey's volatility – myth or reality?" StatCan Blog, November 30. Statistics Canada.

United States

Bowler, Mary and Teresa L. Morisi. 2006. "Understanding the employment measure from the CPS and CPS survey." Monthly Labor Review, February. Bureau of Labor Statistics.

Bureau of Labor Statistics. 2015. "All Employee Standard Error Tables" (tables). Current Employment Statistics – (CES (National)). Washington, D.C.

Bureau of Labor Statistics. 2015. "CES Registry Receipts by Release" (table). Current Employment Statistics – (CES (National)). Washington, D.C.

Bureau of Labor Statistics. "Employment Situation: Technical Note." Economy News Release. Last updated January 9, 2015.

Bureau of Labor Statistics. "Labor force data derived from the Current Population Survey." Handbook of Methods. Washington, D.C.

Bureau of Labor Statistics. 2015. Monthly Employment Situation Report: Quick Guide to Methods and Measurement Issues (Payroll Survey)." BLS Information. Last updated February 6, 2015.

Bureau of Labor Statistics. 2015. "Population control adjustments in the CPS." Labor Force Statistics from the Current Population Survey: Technical Documentation. Washington, D.C.

Bureau of Labor Statistics. 2015. "Seasonal adjustment of CPS estimates." Labor Force Statistics from the Current Population Survey: Technical Documentation. Washington, D.C.

Bureau of Labor Statistics. "Technical Notes for the Current Employment Statistics Survey." Current Employment Statistics – (CE (National)). Last updated June 5, 2015.

Bureau of Labor Statistics. "Updates and adjustments to Current Population Survey standard errors." Labor Force Statistics from the Current Population Survey. Last updated January 16, 2003.

Torrentino, Constance. 2006. "International unemployment rates: how comparable are they?" Monthly Labor Review, June. Bureau of Labor Statistics.

U.S. Census Bureau. 2006–. Design and Methodology: Current Population Survey. Technical paper no. 66. Washington, D.C. Occasional.

International

International Labour Organization. "Definitions of the rates." LABORSTA. Last updated January 3, 2014.

United Nations Economic Commission for Europe. 2006. Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing. New York, N.Y. and Geneva.

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Appendices

Appendix 1
Measuring employment and unemployment in Canada and in the United States: An overview of the surveys

Statistics Canada Labour Force Survey (LFS)

The Labour Force Survey (LFS) is a monthly survey of households conducted by Statistics Canada. It provides monthly estimates of employment and unemployment that are among the most timely and important indicators used to measure the performance of the Canadian economy for the purposes of managing growth, counter-cyclical and anti-inflationary policies. The LFS is the official source for the unemployment rate in Canada. It is also used to administer the federal Employment Insurance Program.

Since its inception in 1945, the objectives of the LFS have been to divide the working-age population into three mutually exclusive groups—employed, unemployed, and not in the labour force—and to provide descriptive and explanatory data on each of these categories. In order to do so, the LFS follows guidelines established by the International Labour Organization (ILO). For employed people, the survey collects information on the job characteristics such as whether the person is an employee or self employed, the industry and occupation of that job, hours worked and their earnings. In addition, the LFS provides contextual information on their demographic, family and education characteristics.

Data from the survey provides information on major labour market trends such as shifts in employment across industrial sectors and occupational groups, average weekly earnings, hours worked, labour force participation, and unemployment rates.

The LFS is a panel survey of dwellings, where each month a new sample of household members is selected to participate for six consecutive months. The total monthly sample size is about 56,000 households. Estimates are produced for Canada, provinces, territories and major sub-provincial regions including metropolitan areas and employment insurance economic regions.

For more detailed information, see *Guide to the Labour Force Survey*, Statistics Canada.

Statistics Canada Survey of Employment, Payrolls and Hours (SEPH)

The Survey of Employment, Payrolls and Hours (SEPH), also conducted by Statistics Canada, provides a monthly portrait of the amount of earnings as well as on the total number of jobs. Its strength is in the information it provides on payroll employment, earnings and hours by detailed industry classifications.

The data provide the principal input to labour income estimates and support the production of real gross domestic product and nominal gross domestic product. SEPH data are also used by the Canada Revenue Agency (CRA), to revise the maximum pensionable earnings and retirement savings plan contribution limits, and by the private sector, for contract escalations and wage rate determinations.

First conducted in 1918, Canada's monthly payroll survey has evolved greatly over the years. In the 1990s, to reduce respondent burden and improve the quality of certain estimates, Statistics Canada began substituting survey data with data from payroll deduction remittance forms (PD7) submitted monthly by establishments (businesses) to Canada Revenue Agency.

Over time, the administrative data, in essence a census of Canada's one million establishments, became the main source of information for what is now called SEPH for the total number of employees and total payroll. The Public Sector Employment Survey provides information for general government services at the provincial and federal levels. The main survey component of SEPH, called the Business Payrolls Survey (BPS), provides additional information on hours worked and earnings that are combined with the administrative data using regression techniques. The BPS sample has during this time declined from 70,000 to 15,000 establishments. The trade-off for better employment estimates from greater use of administrative data is an increase in the timeline for releasing the employment estimates.

Estimates are released for Canada, the provinces and territories. Detailed breakdowns by industry follow the North American Industry Classification System (NAICS).

For more detailed information, see *Guide to the Survey of Employment, Payrolls and Hours*, Statistics Canada.

U.S. Bureau of Labor Statistics Current Employment Statistics (CES)

The Current Employment Statistics (CES) survey is a federal-state cooperative program. The Bureau of Labor Statistics works with state employment security agencies[18] to collect data each month on employment, hours and earnings from a sample of non-farm establishments.

The data provide the first economic indicator of current economic trends each month. They are inputs to many gauges of the U.S. economy including

18. In the United States, state employment security agencies offer services similar to Employment and Social Development Canada.

the overall health of the economy, earnings trends and wage-push inflation and short-term fluctuations in demand. They are also input to other major economic indicators such as personal income, industrial production and productivity measures. They inform other areas of business and research for public policy, wage negotiations and economic research and planning.

Conducted since 1939, data produced from the CES survey include non-farm employment series for all employees, production and nonsupervisory employees, and women employees, as well as average hourly earnings, average weekly hours, and average weekly overtime hours (in manufacturing industries) for both all employees and production and nonsupervisory employees.

The survey frame for the CES is the Bureau of Labor Statistics Longitudinal Database, which contains employer records for about nine million establishments (businesses) in the United States. Each month the CES surveys approximately 143,000 businesses and government agencies, representing about 588,000 worksites. Estimates at the national, state and metropolitan levels are generated independently from the sample frame. Modeling techniques are used when there are sampling limitations, including certain metropolitan areas and industry groupings. Detailed breakdowns by industry follow the North American Industry Classification System (NAICS).

For more detailed information, see Technical Notes for the Current Employment Statistics Survey, Bureau of Labor Statistics.

U.S. Bureau of Labor Statistics Current Population Survey (CPS)

The Current Population Survey (CPS) is a monthly survey of housing units (also referred to as households) conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. It prov 'es the most comprehensive measure of national employment and unemployment, including the national unemployment rate, and is the primary source of data on employment status and characteristics of the labour force, emerging trends, and changes. The data are used as a measure of potential labour supply, for providing determining factors affecting changes in labour force participation of different population groups and for evaluation of wage rates and earnings trends for specific demographic groups.

Conducted since 1940, the CPS provides information on employment, unemployment, persons not in the labour force, hours of work, earnings, and other demographic and labour force characteristics.

The CPS is a monthly panel survey of about 60,000 housing units. The survey asks about the employment status of household members, enabling an allocation of the working-age population into three mutually exclusive groups—employed, unemployed, and not in the labour force. Each month a new sample of housing units is selected to participate for four consecutive months. They then drop out of the sample for the next eight months, and are interviewed again in the following four months. Housing units are in the CPS sample two additional months and over a longer period than the LFS. With this approach, households report on the same four months for two consecutive years, improving the accuracy of the month-to-month and year-to-year change estimates.

While the CES produces national estimates of employment, the CPS provides an integrated set of national employment and unemployment estimates. At this national level and state, both sets of employment estimates are fairly consistent. Regional estimates of employment and unemployment are generated through the Local Area Unemployment Statistics (LAUS) program. This program models current and historic data from the CPS, the CES and state employment insurance systems to produce estimates from the state level to counties and certain cities and towns.

For more detailed information, see Design and Methodology: Current Population Survey, U.S. Census Bureau, 2006.

Appendix 2
Survey concepts used in Canada and in the United States

Table A2.1
Concepts used by the household labour force surveys

Concepts	Labour Force Survey Statistics Canada	Current Population Survey Bureau of Labor Statistics
Employment concept	Estimate of employed persons (multiple jobholders are counted only once).	Estimate of employed persons (multiple jobholders are counted only once).
Employment	Employed persons consist of persons who during the survey reference week: • did any work for pay including self-employment; • did any unpaid work in a family-owned enterprise operated by someone in their household; or • were temporarily absent from their regular jobs, whether they were paid or not.	Employed persons consist of persons who during the survey reference week: • did any work for pay including self-employment; • did at least 15 hours of unpaid work in a family-owned enterprise operated by someone in their household; or • were temporarily absent from their regular jobs, whether they were paid or not.
Unemployment	Unemployed persons consist of persons who during the survey reference week: • had no employment; • were available for work (except in the case of temporary illness); and • were either waiting to be recalled to a job from which they had been laid off, made specific efforts to find employment sometime during the 4-week period ending with the survey reference week or had a job to start within the next four weeks.	Unemployed persons consist of persons who during the survey reference week: • had no employment; • were available for work (except in the case of temporary illness); and • were either waiting to be recalled to a job from which they had been laid off or had made specific efforts to find employment sometime during the 4-week period ending with the survey reference week.
Not in the labour force	All persons who are neither employed nor unemployed. This group includes persons who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets.	All persons who are neither employed nor unemployed. This group includes discouraged workers, defined as persons not in the labour force who want and are available for a job and looked for work sometime in the past 12 months but who are not currently looking because they believe there are no jobs available or there are none for which they would qualify.
Labour force	All persons classified as employed or unemployed.	All persons classified as employed or unemployed.
Participation rate	The proportion of the population that is in the labour force.	The proportion of the population that is in the labour force.
Full-time/part-time	Full-time employment consists of persons who usually work 30 hours or more per week at their main or only job. Part-time employment consists of persons who usually work less than 30 hours per week at their main or only job.	Full-time employment consists of persons who usually work 35 hours or more (at all jobs combined). Part-time workers are those who usually work less than 35 hours per week (at all jobs).
Reference week	Generally the calendar week, Sunday through Saturday, that includes the 15th day of the month.	Generally, the calendar week, Sunday through Saturday, that includes the 12th day of the month.
Population	Included are persons aged 15 years and over residing in Canada who do not reside in the territories and are not living on Indian reserves, full-time members of the regular Armed Forces, and persons living in institutions (for example, inmates of penal institutions and patients in hospitals or nursing homes who have resided in the institution for more than six months).	Included are persons aged 16 years and older residing in the 50 states and the District of Columbia who are not confined to institutions such as nursing homes and prisons, and who are not on active duty in the U.S. Armed Forces.
Household	Any person or group of persons living in a dwelling. A household may consist of any combination of: one person living alone, one or more families, a group of people who are not related but who share the same dwelling.	All persons—related family members and all unrelated persons—who occupy a housing unit and have no other usual address.

Table A2.1
Concepts used by the household labour force surveys (continued)

Concepts	Labour Force Survey Statistics Canada	Current Population Survey Bureau of Labor Statistics
Industry	General nature of the business carried out in the establishment where the person worked (main job only), based on the North American Industry Classification System (NAICS).	General nature of the business carried out in the establishment where the person worked (collected for main job and secondary job). Classification is based on the Census Classification which is derived from the North American Industry Classification System (NAICS).
Occupation	Refers to the kind of work persons were doing during the reference week. Classification is based on the National Occupational Classification for Statistics (NOC-S).	Refers to the kind of work persons were doing during the reference week (collected for main and secondary job). Classification is based on the Census Classification, which is derived from the Standard Occupational Classification (SOC).
Metropolitan area	Large urban cores together with adjacent urban and rural areas that have a high degree of social and economic integration with the urban cores as measured by commuting ties. Census metropolitan areas must have a total population of at least 100,000 of which 50,000 or more live in the core. Census agglomeration must have a core population of at least 10,000.	Large urban cores together with adjacent urban and rural areas that have a high degree of social and economic integration with the urban cores as measured by commuting ties. Metropolitan Statistical Areas have at least one urbanized area of 50,000 or more population. Micropolitan Statistical Areas have at least one urban cluster of at least 10,000 but less than 50,000 people.

Note: Some concepts are abridged to facilitate comparison. Please consult sources for official concepts.
Sources: *Guide to the Labour Force Survey*, Statistics Canada, 2015. Design and Methodology: Current Population Survey, U.S. Census Bureau, 2006.

Table A2.2
Employment concepts used by the business employment survey programs

Concepts	Survey of Employment, Payrolls and Hours Statistics Canada	Current Employment Statistics Program Bureau of Labor Statistics
Employment concept	Estimate of jobs (multiple jobholders counted for each non-farm payroll job).	Estimate of jobs (multiple jobholders counted for each non-farm payroll job).
Employment	Persons on non-farm establishment payrolls who received pay for any part of the reference pay period.	Persons on non-farm establishment payrolls who received pay for any part of the reference pay period.
Enterprise/firm	Enterprise: Any commercial business or institution, whether incorporated or not; comprises sole proprietorships, partnerships, companies and other forms of organizations. A business is considered to be simple if all its establishments operate in the same province or industry classification; otherwise, a business enterprise is classified as complex.	Firm: A business which may consist of one or more establishments, where each establishment may participate in different predominant economic activity.
Establishment	The smallest entity of an enterprise capable of reporting statistics of economic production, for example, a factory, mine, store or a similar unit.	An establishment is an economic unit, such as a factory, mine, store, or office that produces goods or services. It generally is at a single location and is engaged predominantly in one type of economic activity. Where a single location encompasses two or more distinct activities, these are treated as separate establishments, if separate payroll records are available, and the various activities are classified under different industry codes.
Public sector	Information on employment in the public sector at the provincial and federal levels is obtained separately through the Public Sector Employment Survey.	Information on employment in the government obtained separately through the CES government sample is processed separately.

Table A2.2
Employment concepts used by the business employment survey programs (continued)

Concepts	Survey of Employment, Payroll and Hours Statistics Canada	Current Employment Statistics Program Bureau of Labor Statistics
Industrial coverage	All industries in Canada, except those primarily involved in agriculture, fishing and trapping, private household services, religious organizations, international and other extraterritorial public administration and the military personnel of the defence services.	All industries in the United States, except those primarily involved in agriculture, fishing and trapping, private household services, international and other extraterritorial public administration and the military personnel of the defence services.
Industrial classification	General nature of the business carried out in the establishment, based on the North American Industry Classification System (NAICS).	General nature of the business carried out in the establishment, based on the North American Industry Classification System (NAICS).
Payrolls	Gross payroll before source deductions for income taxes, employment insurance contributions, etc. Payroll includes regular pay, overtime and bonuses, commissions, and all other types of special payments.	Gross payroll before deductions of any kind, such as those for old-age and employment insurance, group insurance, withholding tax, bonds, or union dues; also included is pay for overtime, holidays and vacation, sick leave paid directly by the firm, and commissions paid at least monthly. Bonuses and other types of special payments are excluded.
Reference pay period	The last pay period of the month.	The pay period that includes the 12th day of the month.

Note: Some concepts are abridged to facilitate comparison. Please consult sources for official concepts.
Sources: *Guide to the Survey of Employment, Payrolls and Hours*, Statistics Canada, 2015. *Technical Notes for the Current Employment Statistics Survey*, Bureau of Labor Statistics.

Appendix 3
Measuring employment and unemployment in Canada and the United States: A summary comparison

Table A3
Measuring Employment and Unemployment in Canada and the United States: A Summary Comparison

	Statistics Canada	United States Bureau of Labor Statistics
Source of official monthly figures:		
• national employment	• Labour Force Survey (LFS)	• Current Employment Statistics (CES) Program[19]
• national unemployment	• Labour Force Survey	• Current Population Survey (CPS)
• employment by major region	• Labour Force Survey	• Current Employment Statistics Program
• employment by industry	• Survey of Employment, Payrolls and Hours (SEPH)/Labour Force Survey	• Current Employment Statistics Program
• demographic and social characteristics	• Labour Force Survey	• Current Population Survey
Timeliness of monthly official figures:	From the end of the reference month, generally:	From the end of the reference month, generally:
• national employment	• one week	• one week
• national unemployment	• one week	• one week
• employment by major region	• one week	• three weeks
• employment by industry	• one week (broad industry group from LFS-national, provincial and territorial)	• one week (national)
	• two months (detailed industry from SEPH - national, major region)	• three weeks (major region)
• demographic and social characteristics	• one week	• one week

19. Though not the source of official national figures, the Current Population Survey also measures national employment using a broader, more comprehensive measure than the Current Employment Statistics program.

Table A3
Measuring Employment and Unemployment in Canada and the United States: A Summary Comparison (continued)

	Statistics Canada	United States Bureau of Labor Statistics
Age	The official employment and unemployment estimates (LFS) include individuals aged 15 and over.	CES employment data have no age limit. CPS estimates of employment and unemployment include individuals aged 16 and over.
Authority to collect information	Canadian *Statistics Act*.	U.S. Office of Management and Budget (OMB). More specifically for the CPS, Congress Title 13, USC Section 182 and Title 29, USC Sections 1-9.
Mandatory and voluntary	LFS and SEPH are both mandatory.	CPS is voluntary; CES is mandatory in four states.
Revisions to employment statistics programs:		
• household surveys	• Annual revisions to seasonal adjustment models; • adjustments to population estimates every five years to quinquennial census;	• Annual revisions to seasonal adjustment models; • possible revisions if there are large adjustments to population estimates from decennial census;
• business statistics programs	• monthly revisions to more recent figures, annual revisions to seasonal adjustment models and certain industry series, and periodic updates to international industry and occupation classifications.	• monthly revisions to more recent figures, annual benchmarking to Quarterly Census of Employment and Wages and periodic updates to international industry and occupation classifications.
Sample size:		
• household surveys	• LFS: 56,000 (about one in 240 Canadian households).	• CPS: 60,000 eligible housing units, also referred to as households (about one in 2,000 American households).
• business statistics programs	• SEPH (employment estimate component): Census of all payroll establishments from Payroll Deductions administrative file.	• CES Program: Survey component: 588,000 establishments (about one in 15 establishments) Quarterly Census of Employment and Wages benchmark component: 98% of payroll establishments.

Note:
LFS: Labour Force Survey
SEPH: Survey of Employment, Payrolls and Hours
CPS: Current Population Survey
CES: Current Employment Statistics Program